

### **REMARKS**

The following claims are pending in the application: 1 – 22

The following claims have been amended: not applicable

The following claims have been withdrawn: 14 – 22.

The following claims have been deleted: not applicable

The following claims have been added: not applicable

As a result of the foregoing Amendment, the following claims remain pending in the application: 1 – 13.

### **Allowable Subject Matter**

Applicants note the Examiner's favorable disposition towards claims 1 – 6 and 13.

### **The Rejection Under 35 U.S.C. §103(a)**

The Examiner has rejected claims 7 through 12 under 35 U.S.C. §103(a) as being unpatentable over Darnell et al. (US 4,992,207). The Examiner takes the position that Darnell teaches a method for the selective extraction of certain metal ions, from aqueous solutions containing these metal ions. The Examiner further takes the position that a wide variety of microorganisms have the ability to bind these metals to their cell surfaces. The Examiner notes that the prior art does not teach the claimed species *Chlamydomonas Reinhardtii*. However, the Examiner takes the position that the prior art teaches that the ability of a particular metal to bind at a specific pH appears to be a function of pH-metal interaction rather than a function of the type of cell used. Thus,

concludes the Examiner, it would have been obvious to one of ordinary skill in the art to utilize various strains of the genus *Chlamydomonas* with the expectation that any microorganism capable of binding metals may be used in the process, thus allowing the maintenance of an inexpensive process. Further, the Examiner notes that the prior art reference does not teach that the metal-bound protein be admixed into animal foodstuff. The Examiner, however, concludes that it would be obvious to one of ordinary skill in the art to apply these materials to various substances, thus optimizing the nutritional intake of the animal, because the prior art discloses that these metal-bound substances have applications in areas such as water treatment and mineral processing.

Applicants respectfully submit that the Examiner has not fully appreciated the scope of claims 7 through 12. Independent claim 7 is directed towards an animal foodstuff composition comprising transgenic algal cells containing a *non-native metal-binding protein* in the transgenic cells. Applicants respectfully submit that the Examiner's outstanding rejection of claims 7 through 12 may be properly withdrawn as Darnell (1) fails to teach an animal foodstuff comprising transgenic algal cells containing a non-native metal-binding protein; (2) fails to provide a reasonable expectation of success in using transgenic algal cells containing a non-native metal-binding protein in an animal foodstuff; and (3) fails to teach transgenic algal cells containing a non-native metal-binding protein.

Firstly, Darnell et al. fails to teach or even suggest an animal foodstuff comprising transgenic algal cells containing a non-native metal-binding protein. Although the Examiner notes that Darnell fails to teach admixing transgenic algal cells containing a non-native metal-bound protein into an animal foodstuff, the Examiner nevertheless takes the position that it would be obvious to do so because it is known to use non-transgenic

algal cells containing native metal-binding protein in the areas of water treatment and mineral processing. However, the Examiner fails to provide a citation or reference equating the use of non-transgenic algal cells in water treatment and/or mineral processing with the use of transgenic algal cells containing non-native metal-binding proteins in animal foodstuffs thereby demonstrating the substitutability of one for the other. Accordingly, the teachings of Darnell et al. cannot fairly be said to render the present invention an obvious variation of the prior art when the reference fails to address the subject matter of the present invention.

Secondly, Darnell et al. fails to provide on with a reasonable expectation of success in using transgenic algal cells containing a non-native metal-binding protein in an animal foodstuff as Darnell fails to teach or even suggest the use of transgenic algal cells, yet alone their use in animal foodstuffs. Although the Examiner asserts that Darnell's teaching that non-transgenic algal cells may be used in applications such as water treatment and mineral processing, the Examiner has not produced a single reference equating success in either of these applications with the successful incorporation of transgenic algal cells in an animal foodstuff. Accordingly, Darnell cannot fairly be said to provide a reasonable expectation of success in using transgenic algal cells when the reference teaches and only teaches non-transgenic cells.

Finally, and most importantly, Darnell fails to teach transgenic algal cells. The present invention is related to animal foodstuffs comprising transgenic algal cells that contain a non-native metal-binding protein. Darnell never teaches a transgenic algal cell, that is, an algal cell having non-native protein therein. Rather, Darnell teaches and only teaches non-transgenic species. Thus, Darnell fails to teach each and every element of

independent claim 7 (and therefore each and every element of dependent claims 8 through 12 as well). Accordingly, Darnell cannot fairly be said to render the present invention an obvious variation of the prior art when Darnell fails to teach or suggest each and every element of the claimed invention as embodied in claims 7 through 12.

Therefore, Applicants respectfully submit that the Examiner's outstanding rejection may be properly withdrawn.

**CONCLUSION**

In view of the foregoing amendment and accompanying remarks, the Applicants respectfully submit that the present application is properly in condition for allowance and may be passed to issuance upon payment of the appropriate fees.

Telephone inquiry to the undersigned in order to clarify or otherwise expedite prosecution of the subject application is respectfully encouraged.

Respectfully submitted,

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Date: Oct. 6, 2003

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